

Remarks and Arguments

Claims 1-15 were presented for examination. Claims 2-5, 6, 9-11 and 13-15 have been amended. Claims 1 and 8 have been canceled. Claim 16 has been added.

Claim 3 was objected to for a typographical error – the word “time” should have been “space”. In response, this claim has been amended to replace the word “time” with “space.”

Claims 1-4 and 13-15 have been rejected under 35 U.S.C. §112, first paragraph. The examiner claims that the specification does not enable a person skilled in the art to practice an invention commensurate in scope with the breadth recited in the claims. For example, the examiner states that the specification does not enable a person skilled in the art to practice any method in which biomolecules are fragmented into different species of ISD fragment ions, but only enables methods in which ISD fragment ions are formed by spontaneous fragmentation followed by acceleration of the ISD fragments and injection into the first stage of a tandem mass spectrometer, for example, as recited in steps (c) and (d) of claim 5.

Similarly claims 5-7 and 9-15 have been rejected under 35 U.S.C. §112, first paragraph, with the examiner asserting that fragmentation methods other than CID, SID, PID and LID are not disclosed in the specification and thus such other fragmentation methods are not enabled.

In response, claim 5 has been amended by specifying how selected ISD fragmentation ions are fragmented. The specified types of fragmentation (CID, SID, PID and LID) are disclosed in the specification on page 10, lines 10-14. Thus, amended claim 5 is enabled by the specification and the rejection thereof under 35 U.S.C. §112, first paragraph, is respectfully traversed. As amended, claim 5 includes limitations from claims 1 and 8. Therefore, claims 1 and 8 have been canceled. Claims 2 and 3 have been amended to make them depend from claim 5. Claim 4 has also been amended to clarify it. Thus, claims 2-4 are also enabled by the specification. Claims 6, 7, 9 and 11 have been amended to conform them to the claim language of amended claim 5.

Claim 13 has been amended by incorporating the limitations of claim 5. Thus, it also recites limitations relating to the formation of ISD fragment ions and the acceleration of such ions and their injection into the tandem mass spectrometer that

were considered as enabled by the examiner. Consequently, the rejection of claim 13 under 35 U.S.C. §112, first paragraph is also hereby respectfully traversed. Claims 14 and 15 are dependent on amended claim 13 and are similarly enabled.

Claims 1-4 were rejected under 35 U.S.C. §112, second paragraph, for omitting important steps related to utilizing MALDI. As claim 1 has been canceled, this rejection is now moot with respect to it. Claims 2-4 are now dependent on claim 5, which was not considered indefinite for this reason. Consequently, the rejection of claims 2-4 under 35 U.S.C. §112, second paragraph, is hereby respectfully traversed.

Claims 1-8 have also been rejected under 35 U.S.C. §112, second paragraph, for lack of clarity regarding how the selection of one species of ISD fragment ions for further fragmentation is performed. Applicants believe that the term “selecting” in step (e) of the amended claim 5 is clear and definite. The method of the present invention can favorably be conducted with any kind of tandem mass spectrometer. The term “tandem mass spectrometer” is a well known and defined term in the field of mass spectrometry. As can be seen from the attached table of contents of the textbook “Mass Spectrometry” by Jürgen Gross (ISBN 3-540-40739-1), a tandem mass spectrometer can be set up utilizing all major types of mass spectrometers which have, in principle, different modes of operation. Ion selection can be carried out in a number of ways in a tandem mass spectrometer depending on the mode of operation. However, persons skilled in the art would know how to select ions according to their mass (more accurately: mass to charge ratio) with different types of mass spectrometers as this operation has been used for some time and is well-known.

It is settled that claims should not be rejected for omitting limitations dealing with factors that are presumed to be within the skill of the art; the claims need not recite such factors where one of ordinary skill in the art to whom the specification and claims are directed would consider them obvious. See for example MPEP 2164.08 and *In re Skrivan*, 427 F. 2d 801,806; 166 USPQ 85, 88 (CCPA 1970). Thus, applicants do not believe that further details of ion selection need be included in the claims and this rejection is hereby respectfully traversed.

Claim 10 has been rejected under 35 U.S.C. §112, second paragraph. The examiner states that the claim does not clearly recite how the MALDI matrix substances

are used. In response, claim 10 has been amended to clarify that, for each one of the mass spectra, a different matrix substance is used forming ISD fragment ions. Amended claim 10 is now believed to be clear and definite.

Claims 13-15 have been rejected under 35 U.S.C. §112, second paragraph, as indefinite for omitting essential steps required to perform the method. As noted above, claim 13 has been amended to incorporate the limitations of claim 5. This incorporation is believed to supply the steps that the examiner claims to have been omitted in original claim 13. Claims 14 and 15, which depend from claim 13, have also been amended to conform them to the language of amended claim 13.

Claim 14 has been rejected under 35 U.S.C. §112, second paragraph, because the examiner states that it is unclear whether the recited computer program is a commercially-available program or part of the inventive method. The programs recited in claims 14 and 15 are commercial bioinformatic computer programs. Their selection and use would be well-known to those skilled in the art. An example of such a program is the BLAST program. Thus, the rejection of claim 14 under 35 U.S.C. §112, second paragraph is hereby respectfully traversed.

New claim 16 recites that the inventive method can be conducted with a special type of tandem mass spectrometer, namely an ion trap mass spectrometer, wherein the selection, fragmentation and measuring of the granddaughter ions are carried out in the ion trap mass spectrometer consecutively. The subject of claim 16 is disclosed in paragraphs [07] and [64] of the specification.

In light of the forgoing amendments and remarks, this application is now believed in condition for allowance and a notice of allowance is earnestly solicited. If the examiner has any further questions regarding this amendment, she is invited to call

applicants' attorney at the number listed below. The examiner is hereby authorized to charge any fees or direct any payment under 37 C.F.R. §§1.17, 1.16 to Deposit Account number 50-3969.

Respectfully submitted

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2.8 Activation Energy of the Reverse Reaction and Kinetic Energy Release.....	36
2.8.1 Activation Energy of the Reverse Reaction.....	36
2.8.2 Kinetic Energy Release.....	37
2.9 Isotope Effects.....	40
2.9.1 Kinetic Isotope Effects.....	40
2.10 Determination of Ionization Energies and Appearance Energies.....	44
2.10.1 Conventional Determination of Ionization Energies.....	44
2.10.2 Experimental Improvements of IE Accuracy.....	45
2.10.3 Photoelectron Spectroscopy and Derived Modern Methods.....	46
2.10.4 Determination of Appearance Energies.....	48
2.10.5 Breakdown Graphs.....	49
2.11 Gas Phase Basicity and Proton Affinity.....	50
2.12 Tandem Mass Spectrometry.....	53
2.12.1 Collision-Induced Dissociation.....	53
2.12.2 Other Methods of Ion Activation.....	57
2.12.3 Reactive Collisions.....	59
Reference List.....	61
3 Isotopes.....	67
3.1 Isotopic Classification of the Elements.....	67
3.1.1. Monoisotopic Elements.....	68
3.1.2 Di-isotopic Elements.....	68
3.1.3 Polyisotopic Elements.....	69
3.1.4 Calculation of Atomic, Molecular and Ionic Mass.....	71
3.1.5 Natural Variations in Relative Atomic Mass.....	73
3.2 Calculation of Isotopic Distributions.....	74
3.2.1 X+1 Element Carbon.....	74
3.2.2 Binomial Approach.....	77
3.2.3 Halogens.....	78
3.2.4 Combinations of Carbon and Halogens.....	79
3.2.5 Polynomial Approach.....	80
3.2.6 Oxygen, Silicon and Sulfur.....	81
3.2.7 Polyisotopic Elements.....	83
3.2.8 Practical Aspects of Isotopic Patterns.....	84
3.2.9 Isotopic Enrichment and Isotopic Labeling.....	87
3.3 High-Resolution and Accurate Mass.....	88
3.3.1 Exact Mass.....	88
3.3.2 Deviations from Nominal Mass.....	89
3.3.3 Mass Accuracy.....	92
3.3.4 Resolution.....	96
3.3.5 Mass Calibration.....	99
3.4 Interaction of Resolution and Isotopic Patterns.....	104
3.4.1 Multiple Isotopic Compositions at Very High Resolution.....	104

Reference List.....	109
4 Instrumentation.....	111
4.1 Creating a Beam of Ions.....	112
4.2 Time-of-Flight Instruments.....	113
4.2.1 Introduction to Time-of-Flight.....	113
4.2.2 Basic Principle of TOF Instruments.....	114
4.2.3 Linear Time-of-Flight Analyzer.....	117
4.2.4 Reflector Time-of-Flight Analyzer.....	119
4.2.5 Further Improvement of Resolution.....	122
4.2.6 Orthogonal Acceleration TOF.....	125
4.2.7 Tandem MS on TOF Instruments.....	128
4.3 Magnetic Sector Instruments.....	130
4.3.1 Introduction to Magnetic Sector Instruments.....	130
4.3.2 Principle of the Magnetic Sector.....	131
4.3.3 Double-Focusing Sector Instruments.....	134
4.3.4 Setting the Resolution of a Sector Instrument.....	138
4.3.5 Further Improvement of Sector Instruments.....	139
4.3.6 Tandem MS with Magnetic Sector Instruments.....	140
4.4 Linear Quadrupole Instruments.....	145
4.4.1 Introduction to the Linear Quadrupole.....	145
4.4.2 Principle of the Linear Quadrupole.....	146
4.4.3 Resolving Power of Linear Quadrupoles.....	150
4.4.4 RF-Only Quadrupoles.....	151
4.4.5 Tandem MS with Quadrupole Analyzers.....	152
4.4.6 Linear Quadrupole Ion Traps.....	153
4.5 Three-Dimensional Quadrupole Ion Trap.....	154
4.5.1 Introduction to the Quadrupole Ion Trap.....	154
4.5.2 Principle of the Quadrupole Ion Trap.....	155
4.5.3 Operation of the Quadrupole Ion Trap.....	157
4.5.4 External Ion Sources for the Quadrupole Ion Trap.....	162
4.5.6 Tandem MS with the Quadrupole Ion Trap.....	163
4.6 Fourier Transform Ion Cyclotron Resonance.....	164
4.6.1 Introduction to Ion Cyclotron Resonance.....	164
4.6.2 Principle of Ion Cyclotron Resonance.....	165
4.6.3 Fourier Transform Ion Cyclotron Resonance.....	166
4.6.4 Experimental Setup of FT-ICR-MS.....	167
4.6.5 Excitation Modes in FT-ICR-MS.....	168
4.6.6 Detection in FT-ICR-MS.....	169
4.6.7 External Ion Sources for FT-ICR-MS.....	171
4.6.8 Tandem MS with FT-ICR Instruments.....	172
4.7 Hybrid Instruments.....	173
4.8 Detectors.....	175